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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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For: *Leptospira* pathogens

EXHIBIT I

*Curriculum Vitae*

Roderick Chappel

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Victoria 3099  
PHONE (BH): (03) 9418 1115  
PHONE (AH): 0414 748 308  
MARITAL STATUS: Married  
NATIONALITY: Australian  
DATE OF BIRTH: 25 February 1946  
PLACE OF BIRTH: Ivanhoe, Victoria, Australia

**Professional Employment**

NATIONAL SEROLOGY REFERENCE LABORATORY, (AUSTRALIA)  
Quality Manager

1999-Current

**Description:**

Manage the establishment, implementation and maintenance of the quality management system (QMS) in accordance with the International Standard (ISO 9001), NATA General Requirements for Registration (ISO/IEC 17025) and TGA Code of Good Manufacturing Practice (cGMP). Responsible for maintaining the quality manual. Quality Manager, as document controller, ensures the Quality Manual, documented procedures, work instructions and other critical QMS documents are appropriately controlled and implemented. The Quality Manager ensures by regular internal audits that all facilities, test equipment, quality system documents and manuals meet the required standards. The Quality Manager reports the results to the Director for review as a basis for improving the system.

Maintains organisation standards including, but not limited to, quality monitoring, quality evaluation and validation procedures. Continually reviews the QMS and is responsible for developing and implementing improvements in collaboration with the Director, to further develop the quality system philosophy within the NRL. Provides training on new quality system procedures to staff and others as necessary

VICTORIAN INSTITUTE OF ANIMAL SCIENCE, DEPT. OF NATURAL RESOURCES AND ENVIRONMENT,  
VICTORIA  
Quality Manager 1995-1998 & Research Scientist 1972-1998

**Description & Responsibilities:**

Leader of numerous funded research projects since 1974, and participant in other research projects. Quality Manager for VIAS since 1995. As such, led the VIAS diagnostic service to ISO 9000 and Certified Laboratory Practice certification in 1997. Established and led collaborative research teams involving other government institutes, university departments, field veterinarians, and interstate and overseas scientific institutions. Established the team that brought quality certification to a complex diagnostic service. Author of many

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scientific papers and reports, and of quality system documentation. Have made many oral presentations.

Areas of expertise include quality assurance, microbiology, Leptospirosis in livestock and the development and evaluation of diagnostic tests in immunology and biochemistry

**Education****UNIVERSITY EDUCATION**

UNIVERSITY OF MELBOURNE, MELBOURNE 1972

Doctor of Philosophy

UNIVERSITY OF MELBOURNE, MELBOURNE 1967

Bachelor of Agricultural Science

Member of the Australian Society for Microbiology

NATA External Auditor Training

NATA Technical Assessor

**Achievements****Quality management (1999-2001)**

- Quality Manager for NRL
- Maintained ISO 9001 certification, ISO 17025 accreditation and GMP
- Adopted *Fast Track* software to convert paper based system to electronic system
- Developed improved management review integrated with business management
- Provided internal training and external training and consultancy in quality management
- NATA technical assessor

**Quality management (1995-1998)**

- Quality Manager for Institute
- Established Quality Committee for coordinating quality management areas
- Established diagnostic team to work towards certification
- Adopted Paradigm Quality software
- Achieved ISO 9002 certification for diagnostic service
- Achieved Certified Laboratory Practice for diagnostic service
- Overview of Good Laboratory Practice (GLP)
- Supported interlaboratory proficiency testing program

**Leptospirosis (1980-1998)***Established collaborations*

- Monash University
- Regional Veterinary Laboratory, Bendigo
- Other Victorian regional laboratories
- Major pig producer

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- Vaccine companies
  - South Australian Department of Agriculture
  - Pasteur Institute, New Caledonia and Paris

*Developed new technology*

- Immunoassays for leptospiral antigen
- DNA hybridisation
- Immunofluorescence
- Immunogold silver staining
- Improved selective culture medium
- Polymerase chain reaction (PCR) methods

*International aid*

- Australian Centre for International Agricultural Research (ACIAR)
- Transfer of ELISA technology
- Visits to Indonesia for technology transfer
- Trained Indonesian scientist in Victoria

*New knowledge*

- Discovered *Leptospira fainei* serovar hurstbridge
- Discovered by PCR existence of other leptospiral serovars

*Human leptospirosis*

- Serovar hurstbridge as a human pathogen
- PCR for human leptospirosis diagnosis

*Other research outcomes*

- Improved standard microscopic agglutination test
- Experimental infection studies
- Vaccine trials
- Major serological studies in commercial pigs
- Serological studies in dairy cattle
- Studied role of maternally-derived antibody
- Compared eradication strategies
- Produced video for farmers undertaking eradication
- PCR available diagnostically

*Commercialisation*

- Patented use of newly discovered organism
- Commercial licensing of newly discovered organism

**Delayed release technology (1992-1995)**

- Managed animal testing program
- Prepared reports for commercial milestones

**Fowl cholera (1990-1992)**

- Collaborated with Monash University regarding molecular vaccine

**Diagnostic bacteriology (1990-1992)**

- Rostered scientist
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**Annual reports (1990-1993)**

- Contributed to editing

**Acting Section Leader, Biochemistry (1985-1988)**

- Supervised clinical biochemistry
- Supervised research functions

**Association with Monash University (1983-1986)**

- Honorary research associate
- Honorary senior lecturer

**Safety management (1974-1985)**

- Radiation Safety Officer
- Safety Committee

**Bovine brucellosis (1974-1980)**

- Contributed to national eradication program
- Evaluated available serological tests
- Determined test sensitivities to different antibody isotypes
- Developed radioimmunoassay as supplementary test
- Studied prozoning in complement fixation test
- Invited speaker at brucellosis eradication conference, Kuala Lumpur

**Animal experimentation (1972-1988)**

- Pigs, dogs, mice, rabbits, guinea pigs

**Dog vaccination against hydatid tapeworm (1972-1974)**

- Biochemical aspects

**Ph.D. studies, University of Melbourne (1967-1972)**

- Isolated of pig growth hormone (PGH)
- Developed PGH radioimmunoassay
- Studied relationships between PGH and growth, carcass composition

**Publications****Roderick James Chappel**

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**Refereed Publications**

Gust, A., Walker, S., **Chappel, R.J.**, and Dax, E.M. (2001) Anti-HIV quality assurance programs in Australia and the southeast Asian and Western Pacific regions. *Accred. Qual. Assur.* **6**, 168-172.

Perolat, P., **Chappel, R.J.**, Adler, B., Baranton, G., Bulach, D.M., Billinghamurst, M.L., Letocart, M., Merien, F. and Serrano, M.S. (1998) Description, characterization and phylogenetic analysis of *Leptospira fainei* sp. nov., isolated from pigs in Australia. *Int J Syst Bact* **48**, 851-858.

**Chappel, R.J.**, Driesen, S.J., Khalik, D.A., Moore, K.M., Adler, B., Billinghamurst, M.L. and Perolat, P. (1997) Leptospiral infection of pig kidneys with visible lesions, studied using a polymerase chain reaction technique. *Manipulating Pig Production VI* 303.

**Chappel, R.J.**, Khalik, D.A., Adler, B., Bulach, D.M., Faine, S., Perolat, P. and Vallance, V. (1998) Serological titres to *Leptospira fainei* serovar hurstbridge in human sera in Australia. *Epidemiology and Infection* **121**, 473-475.

**Chappel, R.J.**, Prime, R.W., Millar, B.D., Jones, R.T., Cutler, R.S. and Adler, B. (1998) Prevalence and geographic origin of pigs with serological evidence of infection with *Leptospira interrogans* serovar pomona slaughtered in abattoirs in Victoria, Australia. *Vet. Microbiol.* **62**, 235-242.

Moore, K.M., Connaughton, I.D., Callinan, A.P.L., Khalik, D.A. and **Chappel, R.J.** (1997) Relationships between reproductive performance and serological titres to leptospiral serovars hurstbridge and bratislava in a Victorian pig herd. *Manipulating Pig Production VI* 79.

**Chappel, R.J.**, Billinghamurst, M.L., Adler, B., Bulach, D.M., Khalik, D., Merien, F., Serrano, M.S., Wilson, R.J. and Perolat, P. (1996) Isolation from pigs of a pathogenic leptospire of a new genospecies and serogroup (serovar *hurstbridge*), and a serological study of its distribution and possible veterinary significance. *Proceedings of the First Meeting of the International Leptospirosis Society*.

Perolat, P., **Chappel, R.J.**, Letocart, M., Merien, F. and Baranton, G. (1996) Molecular and phenotypic characterization of "*hurstbridge*" strains as a new genomic species of pathogenic *Leptospira*. *Proceedings of the First Meeting of the International Leptospirosis Society*.

**Chappel, R.J.** and Adler, B. (1995) Leptospirosis - more than meets the eye. *Manipulating Pig Production V* 231.

Bills, M.M., Medd, J.M., **Chappel, R.J.** and Adler, B. (1993) Construction of a shuttle vector for use between *Pasteurella multocida* and *Escherichia coli*. *Plasmid* **30**, 268-273.

**Chappel, R.J.** (1993) *Leptospirosis. Pathology, Bacteriology and Serology. Australian Standard Diagnostic Techniques for Animal Diseases*. Standing Committee on Agriculture and Resource Management.

**Chappel, R.J.**, Billinghamurst, M.L., Wan, S.S., Hennessy, D.P., Ellis, W.A. and Adler, B. (1993) Leptospire of serovar *bratislava* as a possible pathogen in Australian pigs. *Manipulating Pig Production IV* 253.

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**Publications****Roderick James Chappel**

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Zhu, S., **Chappel, R.** and Amon, L. (1993) [Restriction endonuclease analysis of Pomona serogroup of *Leptospira interrogans*]. *Wei. Sheng. Wu. Hsueh. Pao.* **33**, 374-377.

**Chappel, R.J.**, Prime, R.W., Millar, B.D., Mead, L.J., Jones, R.T. and Adler, B. (1992) Comparison of diagnostic procedures for porcine leptospirosis. *Vet. Microbiol.* **30**, 151-163.

**Chappel, R.J.**, Ellis, W.A., Adler, B., Amon, L., Millar, B.D., Zhu, S.S. and Prime, R.W. (1992) Serological evidence for the presence of *Leptospira interrogans* serovar *bratislava* in the Australian pig herd. *Aust. Vet. J.* **69**, 119-120.

**Chappel, R.J.** and Cutler, R.S. (1992) How an understanding of leptospirosis in Australian livestock can help you to combat human infection. In: *Zoonoses. Australian Veterinarians in Public Health*. pp. 275-281. Proceedings of the Postgraduate Committee in Veterinary Science, University of Sydney.

**Chappel, R.J.**, Prime, R.W., Cutler, R.S., Jones, R.T., Millar, B.D. and Adler, B. (1990) Antileptospiral antibodies in Australian pig farmers. *Med. J. Aust.* **152**, 105.

**Chappel, R.J.**, Adler, B., Jones, R.T. and Millar, B.D. (1990) Leptospirosis. In: Gardner, J.A.A., Dunkin, A.C. and Lloyd, L.C. (Eds.) *Pig Production in Australia*, 2nd edn. pp. 211-214. Sydney: Butterworths.

**Chappel, R.J.**, Adler, B., Cutler, R.S., Jones, R.T. and Millar, B.D. (1989) The role and effectiveness of antileptospiral vaccines in pigs. In *"Manipulating Pig Production II"*, eds J.L. Barnett and D.P. Hennessy 256-59, 265-272.

**Chappel, R.J.**, Millar, B.D., Adler, B., Hill, J., Jeffers, M.J., Jones, R.T., McCaughan, C.J., Mead, L.J. and Skilbeck, N.W. (1989) *Leptospira interrogans* serovar *hardjo* is not a major cause of bovine abortion in Victoria. *Aust. Vet. J.* **66**, 330-333.

**Chappel, R.J.** (1989) Diagnosis of bovine brucellosis: principles, practice and problems. *Surveillance* **16**, 3-6.

McCormick, B.M., Millar, B.D., Monckton, R.P., Jones, R.T., **Chappel, R.J.** and Adler, B. (1989) Detection of leptospires in pig kidney using DNA hybridisation. *Res. Vet. Sci.* **47**, 134-135.

Millar, B.D., **Chappel, R.J.** and Adler, B. (1988) Macroscopic kidney lesions in slaughtered pigs as an indicator of current leptospiral infection. *Aust. Vet. J.* **65**, 36.

**Chappel, R.J.**, Adler, B., Jones, R.T., Mead, L., Millar, B.D., Prime, R.W. and Skilbeck, N.W. (1987) Studies on the incidence and industry significance of porcine leptospirosis. *Manipulating Pig Production I*, 232.

**Chappel, R.J.**, Adler, B., Millar, B.D. and Jones, R.T. (1987) Porcine leptospirosis. *Proceedings of the Postgraduate Committee in Veterinary Science, University of Sydney* **95**, "Pig Production", 1112-1118.

Jones, R.T., Millar, B.D., **Chappel, R.J.** and Adler, B. (1987) Macroscopic kidney lesions in slaughtered pigs are an inadequate indicator of current leptospiral infection. *Aust. Vet. J.* **64**, 258-259.

Millar, B.D., **Chappel, R.J.** and Adler, B. (1987) Detection of leptospires in biological fluids using DNA hybridisation. *Vet. Microbiol.* **15**, 71-78.

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Millar, B.D., Chappel, R.J., Adler, B., Driesen, S.J. and Jones, R.T. (1987) Effect of maternal vaccination on the susceptibility of growing pigs to leptospiral infection. *Vet. Microbiol.* **15**, 79-87.

Skilbeck, N.W. and Chappel, R.J. (1987) Immunogold silver staining for visualization of leptospires in histologic sections. *J. Clin. Microbiol.* **25**, 85-86.

Adler, B., Faine, S., Christopher, W.L. and Chappel, R.J. (1986) Development of an improved selective medium for isolation of leptospires from clinical material. *Vet. Microbiol.* **12**, 377-381.

Chappel, R.J., Adler, B., Ballard, S.A., Faine, S., Jones, R.T., Millar, B.D. and Swainger, J.A. (1985) Enzymatic radioimmunoassay for detecting *Leptospira interrogans* serovar *pomona* in the urine of experimentally-infected pigs. *Vet. Microbiol.* **10**, 279-286.

Ballard, S.A., Adler, B., Millar, B.D., Chappel, R.J., Jones, R.T. and Faine, S. (1984) The immunoglobulin response of swine following experimental infection with *Leptospira interrogans* serovar *pomona*. *Zentralblatt fur Bakteriologie, Mikrobiologie und Hygiene, Abt. Orig. A* **256**, 510-517.

Chappel, R.J. and Hayes, J. (1983) Comparison of radioimmunoassay with the complement fixation test and the indirect haemolysis test in the field diagnosis of bovine brucellosis. *J. Hyg., Camb.* **90**, 67-70.

Adler, B., Chappel, R.J. and Faine, S. (1982) The sensitivities of different immunoassays for detecting leptospiral antigen. *Zentralblatt Bakt. Hyg., I Abt. Orig. A* **252**, 405-413.

Chappel, R.J., Hayes, J., Brain, G.J. and McNaught, D.J. (1982) A modified radioimmunoassay for antibodies against *Brucella abortus*. *J. Hyg., Camb.* **88**, 1-9.

Chappel, R.J., Hayes, J., Rogerson, B.A. and Shenfield, L.J. (1982) The serological response of cattle to vaccines against brucellosis as measured by the brucellosis radioimmunoassay and other tests. *J. Hyg., Camb.* **88**, 11-19.

Hayes, J. and Chappel, R.J. (1982) A comparison of the results of the brucellosis radioimmunoassay and other serological tests in experimentally infected cattle. *J. Hyg., Camb.* **88**, 21-28.

Phillips, D.R., Chappel, R.J. and Hayes, J. (1982) A possible role of  $\text{Cu}^{2+}$  ions in bovine antibody-antigen interactions. *Res. Vet. Sci.* **32**, 221-224.

Chappel, R.J. (1980) Towards improved serological diagnosis of bovine brucellosis. *WHO/Bruc. Document* **80.353**,

Chappel, R.J., McNaught, D.J., Bourke, J.A. and Allan, G.S. (1978) The diagnostic efficiency of some serological tests for bovine brucellosis. *J. Hyg., Camb.* **80**, 373-384.

Chappel, R.J., McNaught, D.J., Bourke, J.A. and Allan, G.S. (1978) Comparison of the results of some serological tests for bovine brucellosis. *J. Hyg., Camb.* **80**, 365-371.

McNaught, D.J., Chappel, R.J., Allan, G.S., Bourke, J.A. and Rogerson, B.A. (1977) The effects of  $\text{IgG}_2$  and of antigen concentration on prozoning in the complement fixation test for bovine brucellosis. *Res. Vet. Sci.* **22**, 194-197.

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## Publications

## Roderick James Chappel

Allan, G.S., Chappel, R.J., Williamson, P. and McNaught, D.J. (1976) A quantitative comparison of the sensitivity of serological tests for bovine brucellosis to different antibody classes. *J. Hyg., Camb.* 76, 287-298.

Chappel, R.J., Williamson, P., McNaught, D.J., Dalling, M.J. and Allan, G.S. (1976) Radioimmunoassay for antibodies against *Brucella abortus*: a new serological test for bovine brucellosis. *J. Hyg., Camb.* 77, 369-376.

Chappel, R.J. and Dunkin, A.C. (1975) Relation of concentration of growth hormone in blood plasma to growth rate and carcass characteristics in the pig. *Animal Production* 20, 51-61.

Herd, R.P., Chappel, R.J. and Biddell, D. (1975) Immunization of dogs against *Echinococcus granulosus* using worm secretory antigens. *International Journal of Parasitology* 5, 395-399.

Chappel, R.J. and Carnegie, P.R. (1974) Isolation of pig growth hormone under mild conditions. *International Journal of Biochemistry* 5, 187-191.

Chappel, R.J. (1973) Electrophoresis of pig growth hormone under acidic conditions. *International Journal of Biochemistry* 4, 421-424.

## Conference Proceedings

Chappel, R.J., Driesen, S.D., Moore, K.A. and Khalik, D.A. (2001). New Leptospire Infections in Australian Pigs. *Australian Association of Pig Veterinarians Melbourne Proceedings 2001*, 5-8.

Chappel, R.J. (2000) Experiences in implementing a laboratory quality management system. *Proceedings of the Victorian State Conference of the Australian Institute of Medical Scientists, Bendigo*.

Chappel, R.J. (1999) Making quality management a help and not a hindrance. *Proceedings of the 17<sup>th</sup> NRL Workshop on Serology, Perth* 14.

Chappel, R.J. (1999) Experience with the quality management system at the NRL. *Proceedings of the 16<sup>th</sup> NRL Workshop on Serology, Melbourne* 11.

Chappel, R.J.; Adler, B.; Billingham, M.L.; Driesen, S.J.; Khalik, D.A.; Moore, K.M. and Perolat, P. (1998) Leptospire infections in Australian pigs - more than we imagined. *Proceedings of the Australian Association of Pig Veterinarians* 173-190.

Chappel, R.J.; Adler, B.; Billingham, M.L.; Driesen, S.J.; Khalik, D.A.; Moore, K.M. and Perolat, P. (1999) The diversity of leptospire infections in Australia. *Proceedings of the Second Meeting of the International Leptospirosis Society* 14.

Chappel, R.J.; Marshall, R.B.; Collins-Emerson, J.; Khalik, D.A. and Stevenson, B. (1999) A serological study of leptospire serovars bratislava and hurstbridge in New Zealand pigs. *Proceedings of the Second Meeting of the International Leptospirosis Society* xx

Sammons, N.G. and Chappel, R.J. (1999) Vaccination against *Leptospira interrogans* serovar bratislava improved reproductive performance in a commercial pig herd in Australia. *Proceedings of the Second Meeting of the International Leptospirosis Society* 17.

**Publications****Roderick James Chappel**

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Walker, S.; **Chappel, R.J.**; Adler, B.; Khalik, D.A. and Smythe, L.D. (1999) Proficiency testing for the microscopic agglutination test in Australia and New Zealand. *Proceedings of the Second Meeting of the International Leptospirosis Society* 66.

Billinghurst, M.L., **Chappel, R.J.**, Morrow, C.J. and Adler, B. (1994) Isolation of an unusual leptospire from sows. *Aust. Microbiologist* 15, A127.

Davies, P.R., **Chappel, R.J.**, Cecil, A.P., Cutler, R.S., Ellis, G.R. and Prime, R.W. (1991) Vaccination of growing pigs against leptospirosis: does it have a role? *Aust. Assoc. Pig. Veterinarians Pan Pacific Proc.* 87-90.

**Chappel, R.J.**, Prime, R.W., Millar, B.D., Jones, R.T. and Adler, B. (1990) Research into porcine leptospirosis, and its application to the reduction of abattoir-associated human infection. *Proceedings of the DARA Animal Health and Production Conference, VIAS Attwood* 1H.

**Chappel, R.J.**, Davies, P.R., Prime, R.W., Ellis, G., Adler, B., Cutler, R.S., Jones, R.T. and Millar, B.D. (1990) Can piglets be successfully vaccinated against leptospirosis in the presence of maternally-derived serum antibody? *Aust. Microbiologist* 11, 251.

**Chappel, R.J.**, Adler, B., Jones, R.T., Mead, L.J., Millar, B.D. and Prime, R.W. (1989) The prevalence of antileptospiral antibodies in the sera of pigs slaughtered at Victorian abattoirs. *Aust. Microbiologist* 10, 347.

**Chappel, R.J.** (1989) Diagnosis of bovine brucellosis: principles, practice and problems. *Proc of Kuala Lumpur Workshop on Eradication and Control of Brucellosis, 1988.*

Millar, B.D., Adler, B., **Chappel, R.J.**, Jones, R.T., Mead, L.J. and Prime, R.W. (1989) Value of laboratory tests and of macroscopic kidney lesions in the diagnosis of porcine leptospirosis. *Aust. Microbiologist* 10, 348.

**Chappel, R.J.**, Adler, B., Jones, R.T., Millar, B.D. and Prime, R.W. (1988) Macroscopic kidney lesions in pigs: how good are they as an indicator of current leptospirosis? *Aust. Microbiologist* 9, 229.

Millar, B.D., Skilbeck, N.W., Mead, L.J., McCaughan, C.J., Jones, R.T., Jeffers, M.J., Hill, J., **Chappel, R.J.** and Adler, B. (1988) *Leptospira interrogans* serovar *hardjo*: not a major cause of bovine abortion in Victoria. *Aust. Microbiologist* 9, 229.

Millar, B.D., **Chappel, R.J.**, Adler, B., Driesen, S.J. and Jones, R.T. (1987) Effect of maternal vaccination on the susceptibility of growing pigs to leptospiral infection. *Aust. Microbiologist* 8, 164.

Millar, B.D., **Chappel, R.J.** and Adler, B. (1986) The detection of leptospires in porcine body fluids using DNA hybridisation. *Aust. Microbiologist* 7, 209.

Ballard, S.A., Adler, B., **Chappel, R.J.**, Swainger, J.A., Jones, R.T., Millar, B.D. and Faine, S. (1985) The value of serological tests for the detection of pigs infected with *Leptospira*. *Aust. Microbiologist* 6, 183.

**Chappel, R.J.** (1985) Overview of immunoassay systems. *Proceedings of the 5th Australian Food Microbiology Conference.*

**Chappel, R.J.** (1985) Problems in the diagnosis of leptospirosis. *Aust. Vet. J. AVA News*, 10 May.

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**Publications****Roderick James Chappel**

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Christopher, W.L., Adler, B., Faine, S. and **Chappel, R.J.** (1985) Development of a selective culture medium for the isolation of leptospires from aborted cattle fetuses. *Aust. Microbiologist* **6**, 165.

**Chappel, R.J.**, Adler, B., Ballard, S.A., Faine, S., Jones, R.T., Millar, B.D. and Swaininger, J.A. (1984) Detection of leptospires in porcine urine using enzymatic radioimmunoassay. *Aust. Microbiologist* **5**, 187.

Millar, B.D., Adler, B., **Chappel, R.J.**, Ballard, S.A., Jones, R.T. and Faine, S. (1983) The detection of infection with *Leptospira interrogans* serovar pomona in pigs. *Aust. Microbiologist* **4**, 62.

**Chappel, R.J.**, Adler, B. and Faine, S. (1982) Detection of leptospiral antigen in biological fluids by radioimmunoassay. *Aust. Microbiologist* **3**, 68.

Phillips, D.R., **Chappel, R.J.** and Hayes, J. (1981) Do  $\text{Cu}^{2+}$  ions play a role in antibody-antigen interactions? *Proceedings of the Australian Biochemical Society* **14**, 21.

**Chappel, R.J.**, Allan, G.S., Williamson, P. and McNaught, D.J. (1976) A quantitative comparison of the sensitivity of serological tests for bovine brucellosis to different antibody classes. *Victorian Veterinary Proceedings* **34**, 48.

**Chappel, R.J.**, McNaught, D.J. and Allan, G.S. (1976) Immunoglobulin classes involved in serological tests for bovine brucellosis. *Proceedings of the 53rd Annual Conference of the Australian Veterinary Association*.

Williamson, P., **Chappel, R.J.**, Allan, G.S. and McNaught, D.J. (1976) The detection of infection with *Brucella abortus* using radioimmunoassay. *Proceedings of the 53rd Annual Conference of the Australian Veterinary Association*.

**Chappel, R.J.**, Herd, R.P. and Biddell, D. (1974) Characterization of the metabolic secretions of *Echinococcus granulosus*. *Proceedings of the Australian Biochemical Society* **7**, 31.

Herd, R.P., **Chappel, R.J.** and Biddell, D. (1973) Immunization of dogs against *Echinococcus granulosus*. In: *Proceedings of the Symposium, "Recent Advances in Hydatid Disease"*, pp. 29-32. Hamilton: Hamilton Medical Veterinary Association.

**Chappel, R.J.** (1972) Radioimmunoassay of growth hormone in pig plasma. *Proceedings of the Australian Biochemical Society* **5**, 42.

**Extension and Other Publications**

**Chappel, R.J.** and Dax, E.M. (1999) Editorial. Blood screening - the next generation in testing. *Australian and New Zealand Journal of Medicine* **29**: 763-764.

Dax, E.M., Gust, A. and **Chappel, R.J.** (1999) HIV and HCV transmission through transfusion - what change in safety for what price? *Noah's Arc* **10**: 53-56.

**Chappel, R.J.** (1995) New types of leptospirosis in Australian pigs. *Milne's Pork Journal* **17**: 16-17.

**Chappel, R.J.**, Adler, B., Jones, R.T. and Millar, B.D. (1990) Leptospirosis. In: Gardner, J.A.A., Dunkin, A.C. and Lloyd, L.C. (Eds.) *Pig Production in Australia*, 2nd edn. pp. 211-214. Sydney: Butterworths.

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**Publications****Roderick James Chappel**

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Prime, R.W. and Chappel, R.J. (1990) Leptospirosis: a health threat to people and pigs. *Milne's Pork Journal* 12 (5), 36-37.

Chappel, R.J. (1989) Human leptospirosis is a debilitating disease. *Milne's Pork Journal* 11 (6), 14-15.

Prime, R.W. and Chappel, R.J. (1989) Leptospirosis - a problem for people and pigs. *Pork Producer* 9 (10), 16,13

Prime, R.W. and Chappel, R.J. (1989) Leptospirosis, are pig producers at risk? *Pig Farmer* November, 14-16.

Chappel, R.J. (1988) Leptospirosis - a problem for pigs and people. *Pig Farmer* August, 28-29.

Millar, B.D. and Chappel, R.J. (1986) Improved laboratory tests for leptospirosis. *Pig News* (10), 2.

**Thesis**

Chappel, R.J. (1972) Pig growth hormone: isolation and radioimmunoassay in blood plasma. *Ph. D. Thesis, University of Melbourne.*

**Video**

Chappel, R.J. and others (1993) Control and Eradication of Leptospirosis in Australian Piggeries. Sedgwick, Victoria: Sedgwick Video Productions.

**Patent**

Chappel, R.J. (1998) Novel Bacterial Pathogens. International patent application.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Chappel, R. *et al.*

Examiner: Hines, J.

Serial No: 09/380,826

Art Unit: 1645

Filed: November 22, 1999

Docket: DAVIE79.001A

For: Leptospira pathogens

EXHIBIT II

LOCUS LFU60594 1481 bp DNA BCT 10-SEP-1998  
 DEFINITION *Leptospira fainei* 16S ribosomal RNA gene, partial sequence.  
 ACCESSION U60594  
 VERSION U60594.1 GI:1408219  
 KEYWORDS .  
 SOURCE *Leptospira fainei*.  
 ORGANISM *Leptospira fainei*  
 Bacteria; Spirochaetales; Leptospiraceae; *Leptospira*.  
 REFERENCE 1 (bases 1 to 1481)  
 AUTHORS Perolat, P., Chappel, R.J., Adler, B., Baranton, G., Bulach, D.M.,  
 Billinghamurst, M.L., Letocart, M., Merien, F. and Serrano, M.S.  
 TITLE *Leptospira fainei* sp. nov., isolated from pigs in Australia  
 JOURNAL Int. J. Syst. Bacteriol. 48 Pt 3, 851-858 (1998)  
 MEDLINE 98404550  
 REFERENCE 2 (bases 1 to 1481)  
 AUTHORS Adler, B., Chappel, R.J., Baranton, G., Bulach, D.M.,  
 Billinghamurst, M.L., Letocart, M., Merien, F., Serrano, M.S. and  
 Perolat, P.  
 TITLE Direct Submission  
 JOURNAL Submitted (12-JUN-1996) Microbiology, Monash University, Wellington  
 Rd., Clayton, VIC 3168, Australia  
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